

What is claimed is:

We claim:

1. A tire mounting device wherein a tire is mounted to a wheel, said device comprising:

A table for securing the wheel in fixed position;

A gripper arm having a pivot end that is located laterally from said mounting table, said gripper arm also having a grip end that is located oppositely from said pivot end, said gripper arm pivotally moving between a first position wherein the pivot arm is angularly oriented with respect to said table and a second position in which said pivot arm is substantially parallel to the surface of said table, the pivot end of said gripper arm being translationally moveable between a radially open position and radially closed position at times when said gripper arm is in said second position, the gripper and of said pivot arm being moveable between an open position in which a tire can be placed into or out of the gripper end, as a closed position in which the gripper end of the gripper arm clamps the tire; and

A bottom arm that is moveable between a first position in which the arm is away from the mounting table such that it is laterally outside the upper bead rim of the wheel; and

A second position in which the arm is laterally between the upper and lower bead rims of the wheel.

2. The tire mounting device of claim 1 wherein said mounting table has a centering chuck to secure the wheel to said guide table.

3. The tire mounting device of claim 2 wherein said gripper arm receives a tire at times when said gripper arm is in the first position and the gripper is open.

4. The tire mounting device of claim 3 wherein said gripper arm secures to a tire at time when the gripper arm is in the first position and the gripper is closed.

5. The tire mounting device of claim 1 wherein said gripper arm carries a tire from a first position of the gripper arm to the second position of the gripper arm.

6. The tire mounting device of claim 1 wherein said gripper arm is in the second position with the ends of the gripper being located laterally between the inner and outer bead retainer of the wheel.
7. The tire mounting device of claim 1 wherein the pivotal end of the gripper arm is positioned radially toward said table with a radial segment of the inner and outer beads of the tire being radially inside the inner and the outer bead retainer of the wheel.
8. The tire mounting device of claim 7 wherein a segment of the inner and outer beads of the tire are radially within the well of the wheel.
9. The tire mounting device of claim 8 wherein said segment of the inner and outer beads of the tire are urged against said wheel between the inner and outer bead retaining walls.
10. The tire mounting device of claim 1 wherein said press engages a second segment of said tire that is defined between third and fourth radiuses, said second segment being substantially oppositely disposed from said first tire segment.
11. A tire mounting device wherein a tire is mounted to a wheel, said device comprising:
 - A frame for supporting said mounting device;
 - A mounting table that is supported on said frame, said mounting table having a mounting surface for supporting a wheel that is secured to said mounting table;
 - A pivot arm having a pivot end and a grip end that is oppositely disposed on said pivot arm from said pivot end, said pivot arm being secured to said frame at a position on said frame that is located laterally from the mounting surface of said mounting table, the pivot end of said pivot arm being translationally moveable between an open position and a closed position, wherein the open position is laterally extended from said mounting table and the closed position is laterally closer to the mounting table than the open position, said pivot arm pivotally moving between a first position wherein the pivot arm is angularly oriented with respect to the mounting surface of said mounting table and a second position in which said pivot arm is substantially parallel to the mounting surface of said mounting table, the grip end of said pivot arm being moveable between

an open position in which a tire can be placed into or out of the grip, and a closed position in which the tire is clamped in the grip end of the gripper arm; and

A button arm that is moveable in a direction that is generally normal with respect to the mounting surface of the mounting table, said button arm having a press end that is moveable between a raised position and a lowered position, wherein in the raised position the press end is normally above the upper bead rim of a wheel that is mounted on the mounting table and in the lowered position the press end of the button arm is below the upper bead rim of a wheel that is mounted on the mounting table.

12. The tire mounting device of claim 11 wherein said mounting table has a centering chuck to secure the wheel to said guide table.

13. The tire mounting device of claim 12 wherein said pivot arm receives a tire at times when said pivot arm is in the first position and the gripper is open.

14. The tire mounting device of claim 13 wherein the gripper of said pivot arm is closed on a tire at times when the pivot arm is in the first position to secure a tire.

15. The tire mounting device of claim 11 wherein said pivot arm transports a tire from the first position of the pivot arm to the second position of the pivot arm.

16. The tire mounting device of claim 11 wherein the gripper end of said pivot arm is located between the inner and outer bead retainers of the wheels at times when said pivot arm is in the second position.

17. The tire mounting device of claim 11 wherein the pivotal end of the pivotal arm is positioned toward said table with an angular segment of the inner and outer beads of the tire being radially inside the inner and the outer bead retainer of the wheel.

18. The tire mounting device of claim 17 wherein a segment of the inner and outer beads of the tire are radially within the well of the wheel.

19. The tire mounting device of claim 18 wherein said angular segment of the inner and outer beads of the tire are urged against said wheel between the inner and outer bead retaining walls.

20. The tire mounting device of claim 11 wherein said button arm engages a second segment of said tire that is defined between third and fourth radiuses.

21. A method for mounting a tire on a wheel, said tire having inner and outer side walls that define inner and outer bead surfaces, and said wheel having inner and outer bead retaining wall that oppose said inner and outer tire beads at times when the tire is mounted on the wheel; said method comprising the steps of:

placing the tire over the wheel in an axial direction such that a first segment of said tire that is defined between first and second radiuses is located laterally between the inner and outer bead retainer walls of said wheel;

urging the tire radially toward the wheel such that the inner and outer beads of the tire within said first sector contact the wheel between the inner and outer bead retainer;

pressing the inner and outer beads in a second sector of said tire over the inner bead retainer of said wheel;

said second sector of said tire being located on the opposite side of said tire from said first sector; and

releasing the first sector and the second sector of said tire.

22. The tire mounting method of claim 21 wherein said tire is urged against said wheel such that the tire is deformed to bring the tread of said tire within a distance of one-half of the radial dimension between the initial inner radius and the initial outer radius of said tire.

23. A method for mounting a tire on a wheel, said tire having inner and outer side walls that respectively define an inner bead surface and an outer bead surface, said inner bead surface cooperating with said outer bead surface to define an aperture in said tire, said wheel having inner bead retaining wall and an outer bead retaining wall, said inner and outer bead retaining walls opposing said inner and outer tire beads at times when the tire is mounted on the wheel; said method comprising the steps of:

placing the tire over the wheel such that a first segment of said tire that is defined between first and second radiuses is located laterally between the inner and outer bead retainer walls of said wheel and a portion of said wheel intersects a portion of the aperture of said tire;

urging the tire radially toward the wheel such that the inner and outer beads of the tire within said first sector contact the wheel between the inner and outer bead retainer;

pressing a second angular sector of said tire in a direction that is generally parallel to the axis of rotation of said wheel, the second angular sector of said tire being located at an angular position on said tire that is substantially opposite from the angular position of the first angular sector, said second angular sector of said tire being pressed until the inner and outer beads of the tire in said second sector pass over the inner bead retainer of said wheel;

releasing the first sector and the second sector of said tire; and

inflating said tire to a given pressure.

24. The tire mounting method of claim 23 wherein said tire is urged against said wheel such that the tire is deformed to bring the tread of said tire within a distance of one-half of the radial dimension between the initial inner radius and the initial outer radius of said tire.

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